Chapter 6

The Transformation and Enterprise Architecture Framework:
The Applied Holistic Mathematical Model for Geopolitical Analysis (AHMM4GA)

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ABSTRACT

This chapter proposes the applied holistic mathematical model for geopolitical analysis (AHMM4GA) that is the result of research on societal, business/financial, and geopolitical transformations using applied mathematical models. This research is based on an authentic and proprietary mixed research method that is supported by an underlining mainly qualitative holistic reasoning model module that punctually calls to quantitate functions. The proposed AHMM4GA formalism, attempts to simulate functions to support empirical processes.

INTRODUCTION

The AHMM4GA can be used to implement a Decision Making Systems for Geopolitical Analysis (DMS4GA) that can integrate in the country's, region's or organisation (or simply the *Entity*) analysis process. The AHMM4GA uses a Natural Language Programming (NLP) that can be easily adopted by the project's

development teams for implementing Geopolitical Analysis (GA) (Myers, Pane, & Ko, 2004; Kim & Kim, 1999; Della Croce & T'kindt, 2002), to model GA or complex Enterprise Architecture (EA) blueprints. The uniqueness of the author's Research & Development Project (RDP) is that the AHMM4GA promotes a holistic structure, for the alignment of various frameworks, standards and strategies to support transformation projects (Farhoomand, 2004). The proposed AHMM4GA has been applied to verify various cases in different fields and domains; and the results were more than satisfying; like for example, it in the cases: 1) financial services engineering and evaluation, to support the detection of financial irregularities and crimes; 2) to analyse the rise and the 1975 fall of the Lebanese business ecosystem; 3) to assess the risks of the Lebanese Islamic business strategy… (Trad, 2019d).; 4) to analyse gigantic financial manipulations like the ones, related to fraud and money laundering that damage many emerging countries, and this case it is related to the Universal Banking System (UBS) (Stupples, Sazonov, & Woolley, 2019), in which trillions of US dollars are hidden; in the moment where the world is suffering from recessions and other major problems; and 5) many other related cases.

GA or Transformation Projects (or simply the *Project*) are managed as a set of separate black-boxes, where their structures are a hairball; which is called the *Entity,* which owns an Information and Communication System (ICS). The DMS4GA is used to solve GA problems by offering a set of possible solutions in the form of explanations and GA recommendations; by using a central qualitative method based on a beam search (heuristic tree) that uses quantitative methods at its nodes. The proposed AHMM4GA's implementation is very complex and needs a profound understanding of many complex fields. The DMS4GA' actions produce solutions, which have the form of geopolitical, societal and managerial recommendations. A DMS4GA is a multi-objective, multi-project, multi Critical Success Factor (CSF). This chapter's background combines knowledge management, innovative DMS4GA approach, enterprise architecture, heuristics/mathematical models, ICS management, societal/geopolitical transformation initiatives and GA related fields (Goikoetxea, 2004; Tidd & Bessant, 2009). As shown in Figure 1, where the major strategic field trend is Artificial Intelligence (AI) based *Projects*; so the author concludes that building an innovative AHMM4GA is in the line of innovation (Cearley, Walker & Burke, 2016; Thomas, 2015; Ho, Xu & Dey, 2010). An AHMM4GA instance enables the implementation of a generic and cross-functional reasoning engine that is mainly based on: 1) mainly geopolitical CSF classification mechanisms; 2) an adapted qualitative heuristics tree research method; and 3) a set of quantitative modules that can be triggered from the tree's nodes. The author based his RDP uses existing industry standards, like for example The Open Group's Architecture Framework's (TOGAF) and its Architecture Development Method (ADM) (The Open Group, 2011a; Tidd & Bessant, 2009). The AHMM4GA is strategy driven and

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